

What is claimed is:

1. A spark plug comprising:

a center electrode;

a metal shell;

5 an insulator comprising alumina ceramic and disposed between the center electrode and the metal shell,

wherein at least part of the surface of the insulator is covered with a glaze layer, the glaze layer contains a PbO component in a content of 1 mol% or less in terms of PbO, and  
10 the glaze layer has a Vickers hardness Hv of 100 or more.

2. The spark plug as set forth in claim 1, wherein the glaze layer contains: 15 to 60 mol% of a Si component in terms of SiO<sub>2</sub>; 22 to 50 mol% of a B component in terms of B<sub>2</sub>O<sub>3</sub>; 10  
15 to 30 mol% of a Zn component in terms of ZnO; 0.5 to 35 mol% in total of at least one of Ba and Sr components in terms of BaO and SrO, respectively; 1 mol% or less of an F component; 0.1 to 5 mol% of an Al component in terms of Al<sub>2</sub>O<sub>3</sub>; and 1.1 to 10 mol% in total of at least one of alkaline metal components  
20 of Na, K and Li, in terms of Na<sub>2</sub>O, K<sub>2</sub>O and Li<sub>2</sub>O, respectively, wherein Li is essential, and the content of the Li component is 1.1 to 6 mol% in terms of Li<sub>2</sub>O.

3. The spark plug as set forth in claim 1, wherein the  
25 glaze layer contains at least one of phosphate ion, sulfate

ion, fluoride ion and chloride ion.

4. The spark plug as set forth in claim 3, wherein the glaze layer contains at least one of phosphate ion, sulfate ion, fluoride ion and chloride ion in a content of 0.5 to 10 mol% in total.

5. The spark plug as set forth in claim 4, wherein the glaze layer contains sulfate ion in a content of 0.5 to 10 mol%.

6. The spark plug as set forth in claim 1, wherein the glaze layer further contains 0.5 to 5 mol% in total of at least one of Ti, Zr and Hf in terms of  $ZrO_2$ ,  $TiO_2$  and  $HfO_2$ .

7. The spark plug as set forth in claim 1, wherein the glaze layer further contains 0.5 to 5 mol% in total of at least one of Mo, W, Ni, Co, Fe and Mn in terms of  $MoO_3$ ,  $WO_3$ ,  $Ni_2O_4$ ,  $Co_3O_4$ ,  $Fe_2O_3$ , and  $MnO_2$ , respectively.

8. The spark plug as set forth in claim 1, wherein the glaze layer shows an external appearance of 0 to 6 in chroma Cs and 7.5 to 10 in lightness Vs when observed in the state that the glaze is formed on the insulator.

9. The spark plug as set forth in claim 1, wherein the

insulator is formed with a projection part in an outer circumferential direction at an axially central position thereof,

taking, as a front side, a side directing toward the front  
5 end of the center electrode in the axial direction, a cylindrical face is shaped in the outer circumferential face at the base portion of the insulator main body in the neighborhood of a rear side opposite the projection part, and the outer circumferential face at the base portion is covered with the  
10 glaze layer formed with the film thickness ranging 10 to 50  $\mu\text{m}$ .